UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,644	02/28/2002	Robert Joseph Topper	MATP-623US	3723

			EXAMINER
23122	7590	09/28/2005	YE, LIN

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ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 09/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>28 February 2002</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-15</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-15</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>29 March 2002</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

    basis for the rejections under this section made in this Office action:

    A person shall be entitled to a patent unless –

    (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
    in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
    patent by another filed in the United States before the invention by the applicant for patent, except that an
    international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
    subsection of an application filed in the United States only if the international application designated the United
    States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Aleksic et al. U.S.

    Patent 6,020,921.

    Referring to claim 1, the Aleksic reference discloses in Figures 1, 3 and 4, a circuit

    (gamma correction circuit) for applying a transfer function to an input signal comprising: an

    input line for receiving the input signal (input video signal Y [7...0], See Col. 3, lines 32-33)

    as shown in Figure 3; a plurality of operators (e.g., three segment operators as shown in

    Figure 1) for generating piecewise-linear segments of the transfer function (See Col. 3, lines

    13-28); and a window detector (e.g., comparison circuit 21, constant input 34, AND gate 23

    and OR gate 25 are considered as a window detector) for determining a value of the input

    signal and selecting one of the operators based on the value of the input signal (e.g.,

    comparison circuit 21, constant input 34, AND gate 23 and OR gate 25 determine whether

    the intensity values of the input signal Y[7...0] fitted into any segments as shown in Figure

    1, and select one of the operators by using select signals S1 and S0 based on the value of the

input signal, see Col. 3, lines 48-67 and Col. 4, lines 1-20); wherein the selected one of the operators applies a correction value to correct the value of the input signal (See Col. 3, lines 20-36 and Figure 4).

Referring to claim 2, the Aleksic reference discloses wherein the selected operator generates the piecewise-linear segment (three straight line segments) free of a table for defining the piecewise-linear segments of the transfer function (Col. 1, lines 49-54).

Referring to claim 3, the Aleksic reference discloses wherein each of the operators generates a different one of the piecewise-linear segments of the transfer function as shown in Figure 1 (See, Col. 3, lines 24-26).

Referring to claim 4, the Aleksic reference discloses wherein each of the operators simultaneously generates a respective correction value responsive to the value of the input signal as shown in Figure 3; and the circuit further including a multiplexer (15 and 17, see Col. 3, lines 31-36) for selecting one of the respective correction values to correct the value of the input signal (Y [7..0]).

Referring to claim 5, the Aleksic reference discloses wherein the window detector includes a plurality of digital comparators and an encoder (elements 21, 23 and 25 obtain the select signals S1 and S0 as two bit codes) for selecting the one respective correction value (Yg) to correct the value of the input signal (Y) as shown in Figures 3-4.

Referring to claim 6, the Aleksic reference discloses wherein the selected operator includes a multiplier for multiplying the value of the input signal with a value of a slope (e.g., the slop of three segments are 4, 1 and ½) of the piecewise-linear segment generated by the selected operator (See the transfer function disclosed in Col. 3, lines 24-27).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aleksic et al. U.S.

Patent 6,020,921 in view of Lin et al. U.S. Patent 6,292,165.

Referring to claim 6, the Aleksic reference discloses all subject matter as discussed with

respected to claim 1, except that the Aleksic reference does not explicitly show a detail of the

selected operator includes a subtractor, a multiplier and an adder, the subtractor subtracting a

lower value of the piecewise-linear segment, generated by the selected operator, from the

value of the input signal to provide an offset value; the multiplier multiplying the offset value

with a value of a slope of the piecewise-linear segment to provide a product; and the adder

adding the product and a low output value of the piecewise-linear segment to provide the

correction value.

The Lin reference teaches in Figures 1-3, a selected operator of the gamma correction

circuit includes the subtractor (115, See Col. 5, line 21) subtracting a lower value of the

piecewise-linear segment (bottom value G(A)), generated by the selected operator, from the

value of the input signal to provide an offset value (into the offset flock 120); the multiplier

(125) multiplying the offset value with a value of a slope ((G(B)-G(A))/(B-A)) of the

piecewise-linear segment to provide a product; and the adder adding the product and a low

output value of the piecewise-linear segment to provide the correction value (See the gamma

correcting function $G(IN) = \frac{(IN-A)^*(G(B)-G(A))}{(B-A)} + G(A)$ disclosed in Col. 3, lines 45-64). The

Lin reference is evidence that one of ordinary skill in the art at the time to see more

advantages the selected gamma correction operator includes a multiplexer, a subtractor,

offset block and adder so that providing a improved piece-wise gamma correction method

that saves memory, enhances gamma corrected accuracy, and also reduces circuit size (See

Col. 2, lines 37-60). For that reason, it would have been obvious to one of ordinary skill in

the art to modify the gamma correction circuit of Aleksic ('921) by providing the selected

operator to include a subtractor, a multiplier and an adder, the subtractor subtracting a lower

value of the piecewise-linear segment, generated by the selected operator, from the value of

the input signal to provide an offset value; the multiplier multiplying the offset value with a

value of a slope of the piecewise-linear segment to provide a product; and the adder adding

the product and a low output value of the piecewise-linear segment to provide the correction

value as taught by Lin ('165).

5. Claims 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aleksic et al.

U.S. Patent 6,020,921 in view of Sathe et al. U.S. Patent 5,909,249.

Referring to claim 8, the Aleksic reference discloses all subject matter as discussed with

respected to claim 1, except that the Aleksic reference does not explicitly show the transfer

function is an inverse gamma transfer function.

The Sathe reference teaches in Figure 5, an example graphical of an inverse gamma transfer function for correcting the value of the input video signal (See Col8, lines 66-67, Col. 9, lines 1-18). The Sathe reference is evidence that one of ordinary skill in the art at the time to see more advantages the transfer function is an inverse gamma transfer function so that the corrected output video signal carry less quantization noise, thereby resulting in an improved video image (See Col. 9, lines 20-25). For that reason, it would have been obvious to one of ordinary skill in the art to modify the gamma correction circuit of Aleksic ('921) by providing the inverse gamma transfer function to correct the value of the input video signal as taught by Sathe ('249).

Referring to claim 9, the Aleksic and Sathe references disclose all subject matter as discussed with respected same comments to claims 1 and 8.

Referring to claim 10, the Aleksic and Sathe references disclose all subject matter as discussed with respected same comments to claims 2 and 9.

Referring to claim 11, the Aleksic and Sathe references disclose all subject matter as discussed with respected same comments to claims 3 and 9.

Referring to claim 12, the Aleksic and Sathe references disclose all subject matter as discussed with respected same comments to claims 4 and 9.

Referring to claim 13, the Aleksic and Sathe references disclose all subject matter as discussed with respected same comments to claims 5 and 9.

Referring to claim 14, the Aleksic and Sathe references disclose all subject matter as discussed with respected same comments to claims 6 and 9.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aleksic et al. U.S.

Patent 6,020,921 in view of Sathe et al. U.S. Patent 5,909,249 and Lin et al. U.S. Patent

6,292,165.

Referring to claim 15, the Aleksic, Sathe and Lin references disclose all subject matter as

discussed with respected same comments to claims 7 and 9.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

   a. Kang U.S 6,587,584 discloses a gamma correcting circuit for generating piecewise-linear

   segments of the transfer function as shown in Figure 4.

   b. Koshiba et al. U.S. 6,933,970 discloses a gamma correcting circuit for generating

   piecewise-linear segments of the transfer function as shown in Figures 9a-b.

   c. Sano et al. U.S. 6,023,533 discloses a gray scale of the input image correction circuit.

8. Any inquiry concerning this communication or earlier communications from the examiner

should be directed to Lin Ye whose telephone number is (571) 272-7372. The examiner can

normally be reached on Mon-Fri 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David L. Ometz can be reached on (571) 272-7593. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status information

for unpublished applications is available through Private PAIR only. For more information

about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access

to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197

(toll-free).

Lin Ye
Examiner
Art Unit 2615

September 27, 2005